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10/786,340	02/25/2004	Hyung-Joon Kim	YOU101	4561

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EXAMINER

ZHENG, LOIS L

ART UNIT PAPER NUMBER

1742

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/786,340

Applicant(s)

KIM ET AL.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/12/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 2-3, 5-11 and 14-15 are amended in view of the preliminary amendment filed 25 February 2004. Therefore, claims 1-15 are currently under examination.

In claim 6, line 2, after "consisting", "of" should be inserted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5-8 and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/42638.

Since WO 99/42638 is in Japanese, the examiner relies on the corresponding US patent Kanai et al. US 6,607,587 B1(Kanai) to establish the rejection ground.

Kanai teaches a process of forming a non-chromium anticorrosion coating on metal surfaces such as steel, aluminum, copper, galvanized steel, etc(abstract, col. 2 lines 53-60, col. 3 lines 6-10, col. 7 lines 1-5). Kanai further teaches that its coating composition comprising a thiocarbonyl group containing compound such as thiourea in the amount of 0.2-50g/l(col. 3 line 45 – col. 5 line 52) and aqueous resins such as acrylic, epoxy and/or polyester resins in the amount of 1-80wt%(col. 6 lines 12-33). Kanai further teaches that the coating composition can be applied by roll coating(col. 7

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lines 59-63) and followed by curing at a temperature of 40°C to 250°C(col. 7 lines 31-33).

Regarding claim 1, the thiocarbonyl group containing compound such as thiourea as taught by Kanai reads on the claimed organosulfur containing compound. Kanai further teaches that the thiocarbonyl group containing compound is dissolved in water or alkaline solution(col. 5 lines 41-43), which reads on the claimed dissolving step (a). Since the coating composition of Kanai comprises both thiocarbonyl group containing compound and aqueous resin, Kanai inherently teaches the claimed mixing step (b). Kanai also teaches the claimed coating step(c) and the curing step(d).

Regarding claim 12, since the coating composition of Kanai comprises both thiocarbonyl group containing compound and aqueous resin, Kanai inherently teaches the claimed mixing step (a). Kanai also teaches the claimed coating step(b) and the curing step(c).

Regarding claims 2, 5-8 and 14-15, Kanai teaches the organosulfur compound, the polymeric resin and the types of metallic substrate as claimed.

Regarding claim 13, Kanai further teaches that the metallic substrate may be steel plated by galvanization(col. 3 lines 6-10, col. 7 lines 1-5), which encompasses the claimed electrogalvanized steel since an electrogalvanized steel is a steel plated by galvanization. In addition, the term "electrogalvanized", as recited in instant claim 13, is a process limitation. Since the instant claim is directed to the metal substrate and an electrogalvanized steel produces the same zinc coated steel substrate as a regular

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galvanized steel, the examiner concludes that the steel plated by galvanization as taught by Kanai reads on the claimed electrogalvanized steel.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai.

The teachings of Kanai are discussed in paragraph 3 above.

Regarding claim 9, Kanai further teaches that the anticorrosive coating may contain a solvent such as alcohols to improve the uniformity and smoothness of the coating film(col. 6 lines 62-67). Since the anticorrosive coating comprises both an organosulfur containing compound and a polymeric resin, the alcohol solvent as taught by Kanai reads on the solvent for the organosulfur compound as claimed. In addition, one of ordinary skill in the art would have found the claimed ethanol, 1-propanol, and/or 1-butanol solvent obvious solvent choices for the anticorrosive coating composition of Kanai and can be applied with expected success since ethanol, 1-propanol, 1-butanol are alcohols.

Regarding claims 10-11, Kanai further teaches that the concentration of the thiocarbonyl group containing compound such as thiourea is 0.2-50g/l(col. 5 lines 45-52) and the coating composition can be applied by roll coating(col. 7 lines 59-63) and

followed by curing at a temperature of 40°C to 250°C(col. 7 lines 31-33). The concentration of thiourea and the curing temperature as taught by Kanai overlap the claimed organosulfur compound concentrate and the claimed curing temperature.

Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed organosulfur compound concentration and the curing temperature ranges from the disclosed ranges of Kanai would have been obvious to one skilled in the art since Kanai teaches the same utilities in its' disclosed thiourea and curing temperature ranges.

6. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai in view of Thompson et al. US 4,684,507(Thompson).

Thompson teaches a corrosion-inhibiting compound produced by reacting an alkylthiol such as octyl thiol or dodecylthiol with methyl methacrylate and diethylene triamine (Examples 1-2). The examples of Thompson further suggests that the alkylthiol and acrylic resin(i.e. methyl methacrylate) are mixed in solution form.

Regarding claim 3, it would have been obvious to one of ordinary skill in the art to have incorporated the alkylthiol such as dodecylthiol as taught by Thompson into the coating composition of Kanai to substitute the thiocarboxylic group containing compound in order to form a corrosion inhibitor that is particularly useful for the protection of metal equipment of gas and oil wells as taught by Thompson(col. 14 line 54 – col. 15 line 30). In addition, the alkylthiol such as dodecylthiol as taught by Kanai in view of Thompson reads on the claimed alkanethiol with 10-21 number of hydrocarbons.

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Regarding claim 4, even though Kanai in view of Thompson does not explicitly teach the claimed 1-octadecanethiol, one of ordinary skill in the art would have found it obvious to use the claimed 1-octadecanethiol in coating composition of Kanai in view of Thompson with expected success since 1-octadecanethiol is also an alkylthiol, therefore, should behave similarly to dodecylthiol.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-11 and 12-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/786,379(App'379), corresponding US PGPUB 2005/0186347 A1, in view of Thompson.

The claims of App'379 teach a process of coating metal surfaces, such as electrogalvanized steel sheets, zinc, aluminum, copper sheets, etc, with a protective film. The coating process comprises dissolving alkanethiol such as 1-octadecanethiol in a solvent such as ethanol, treating the metal surface with the dissolved alkanethiol solution and curing the treated metal surface.

However, App'379 does not explicitly teach the claimed mixing of alkanethiol with a polymeric resin.

The teachings of Thompson are discussed in paragraph 6 above.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the polymeric resins such as methyl methacrylate and diethylene triamine as taught by Thompson into the coating solution of App'379 in order to provide improved corrosion inhibition that is particularly useful for the protection of metal equipment of gas and oil wells as taught by Thompson.

This is a provisional obviousness-type double patenting rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hubbell et al. US 2003/0133963 A1 teaches alkane thiols, such as octadecanethiol, are known to be applied to metal surfaces such as gold, silver or copper for corrosion prevention and the alkane thiols are dissolved in ethanol.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248.

The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

ROY KING
SUPERVISORY PATENT EXAMINER
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